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Graduate Studies
State College
Indiana, Pennsylvania

1960

The Master's Degree

1961



LEONARD HALL

Indiana State Teachers College, including the graduate program is accredited by the Middle States Association of Colleges and Secondary Schools, and the National Council for Accreditation of Teacher Education.

ADMINISTRATION

| | |
|-------------------------------------|---|
| Willis E. Pratt, A.M., Ph.D., LL.D. | President |
| Ralph W. Cordier, Ph.D. | Dean of Instruction |
| John E. Davis, Ph.D. | Director of Teacher Training, Laboratory School, Placement |
| S. Trevor Hadley, Ed.D. | Dean of Students |
| William E. Lafranchi, M.S. | Librarian |
| Nancy J. Newkirk, A.M. | Dean of Women |
| Arthur F. Nicholson, Ed.D. | Director of Public Relations |
| Leroy H. Schnell, A.M. | Dean of Men, Veterans' Counselor |
| George A. W. Stouffer, Jr., Ed.D. | Assistant Dean of Instruction |

DIVISION OF GRADUATE STUDIES

| | |
|----------------------|------------------------------|
| I. L. Stright, Ph.D. | Director of Graduate Studies |
|----------------------|------------------------------|

GRADUATE COUNCIL

| | |
|-------------------------------|----------------------------|
| I. L. Stright, Chairman | P. David Lott |
| Edward W. Bieghler, Secretary | Joy E. Mahachek |
| Ralph W. Cordier | Arthur F. Nicholson |
| John E. Davis | Dwight Sollberger |
| S. Trevor Hadley | George A. W. Stouffer, Jr. |
| William E. Lafranchi | Albert J. Wahl |

CALENDAR

June 1, 1960—June 1, 1961

Pre-Session, June, 1960

- June 1—Applications for admission to the Graduate Division, for all students who plan to take work during the Pre-Session, must be filed at the Graduate Office on or before this date.
- June 9—Registration and payment of fees for all graduate students in Pre-Session.
- June 10—Pre-Session classes begin.*
- June 15—Applications for admission to the Graduate Division, for all students who plan to take work during the Main Session, must be filed at the Graduate Office on or before this date.
- June 23—End of classes, Pre-Session.

Main Session*

- June 23—Registration and payment of fees for all graduate students in Main Session.
- June 27—Main Session classes begin.
- July 20—Applications for admission to the Graduate Division, for all students who plan to take work during the Post-Session, must be filed at the Graduate Office on or before this date.
- August 5—End of classes, Main Session.

Post Session

- August 4—Registration and payment of fees for all graduate students in Post-Session.
- August 8—Classes begin, Post-Session.*
- August 19—Classes terminate, Post-Session.
- August 25—End of Post-Session.
- August 31—Applications for admission to the Graduate Division, for all students who plan to take work during the Fall Semester, 1960-1961, must be filed at the Graduate Office on or before this date.

*During the Pre- and Post-Sessions classes will meet on ten days. On each day there will be two sessions; one starting at eight o'clock and running to 9:15, with the second starting at 10:45 and running to 12:00. During Main Session graduate students may carry three courses. For each course there will be one class meeting for an hour in length per day.

Fall Semester, 1960-61

- September 13—Registration and payment of fees for all graduate students in Fall Semester.
- September 15—Evening classes begin.
- September 17—Saturday classes begin.
- November 23—Thanksgiving vacation begins.
- November 28—Thanksgiving vacation ends.
- December 20—Christmas vacation begins.
- January 2—Christmas vacation ends.
- January 16—Applications for admission to the Graduate Division, for all students who plan to take work during the Spring Semester, must be filed at the Graduate Office on or before this date.
- January 21—Semester ends.

Spring Semester, 1960-61

- January 28—Registration and payment of fees for all graduate students in Spring Semester.
- January 28—Saturday classes begin.
- January 31—Evening classes begin.
- March 28—Easter weekend begins.
- April 3—Easter weekend ends.
- May 18—Classes terminate.
- May 25—Semester ends.

GRADUATE STUDIES PROGRAM — SUMMER SESSIONS, 1960

| Pre-Session | Main Session | | | Post Session |
|--|--|---|--|---|
| | 7:45 - 8:40 | 9:20 - 10:15 | 10:55 - 11:50 | |
| Ed 542 Arithmetic in the Elementary School | Math 584 insights Into Modern Mathematics | Math 571 Modern Geometries | Math 510 Sem. in Math I (Arithmetic and Algebra) | Ed 518 Prod. and Use of Aud-Vis Materials |
| Ed 512 Phil. Foundations of Education | Ed 515 Elements of Research | Ed 531 Curr. Problems in Elem. Education | Ed 544 Recent Trends in Elem. Language Arts | EngS 525 Early English Drama |
| EngS 522 Chaucer | Ed 545 Exper. Studies in Art Education | Ed 533 Reading Dis. of Elem. School Children | Ed 546 Modern Procedures and Skills in Elem. Music | Guid 538 Organ. and Admin. of the Guidance Program |
| Guid 535 Study of the Individual | Ed 513 Social Foundations of Education | Ed 516 Statistical Methods in Education | Ed 541 Special Problems in Elem. Social Studies | SS 521 Contemporary American Issues |
| SS 553 Contemporary Economic Issues | Ed 522 Principles and Practices in Speech Improvement | Ed 512 Phil. Foundations of Education | Ed 515 Elements of Research | HPe 521 Adv. Sem. in Health and Safety |
| Mus 521 Music Literature and Materials | EngS 523 The Development of Modern English | Guid 540 Clinical Techniques in Guidance | EngS 527 Restoration Drama | Psy 532 Studies in Child Adjustment and Guidance |
| Sci 521 Recent Advances in Science | Guid 537 Techniques used in Counseling | Geog 526 India, Pakistan and Indo-Chinese Peninsula | Guid 533 Evaluative Methods in Guidance I | |
| Fl. 522 Applied Linguistics | Guid 531 Philosophy and Principles of Guidance | Sci 541, 542—Comparative Anatomy | | |
| | SS 563 Intergroup Relations | FL 521 Language and Society | Guid 532 Psychology of Growth and Development | |
| | Geog 532 Urban Geography | Bus 521 Economic Background of Business | Ed 543 Resource Material in Elementary Science | |
| | Sci 572 Demonstrations in Chemistry and Physics | | | |

TENTATIVE SCHEDULE—1960-1961**Fall Semester****Tuesday Evenings—5:30-7:10**

- | | | |
|------|-----|-----------------------------------|
| Guid | 534 | Evaluative Methods in Guidance II |
| FL | 521 | Language and Society |
| SS | 581 | Problems in Logic |

Tuesday Evenings—7:30-9:10

- | | | |
|------|-----|---|
| Guid | 536 | Occupational and Educational Information |
| EngS | 531 | Major Writers (Emerson, Thoreau, and Hawthorne) |
| Sci | 545 | Microtechnique |

Thursday Evenings—5:30-7:10

- | | | |
|----|-----|---|
| Ed | 515 | Elements of Research |
| SS | 531 | Economic and Social History of Pennsylvania |

Thursday Evenings—7:30-9:10

- | | | |
|------|-----|---|
| Psy | 532 | Studies in Child Adjustment and Guidance |
| Sci | 531 | Atomic Structure |
| Geog | 528 | Seminar in Regional Geography—South America |

Saturday Mornings—9:00-10:40

- | | | |
|------|-----|--|
| Ed | 513 | Social Foundations of Education |
| Math | 521 | Basic Concepts in Mathematics |
| Math | 531 | Advanced Calculus |
| El | 533 | Reading Disabilities of Elementary School Children |
| Guid | 539 | Group Guidance |
| EngS | 526 | Shakespeare and His Contemporaries |

Saturday Mornings—11:00-12:40

- | | | |
|------|-----|--|
| Math | 534 | Function of a Complex Variable |
| Ed | 516 | Statistical Methods in Education |
| Guid | 531 | Philosophy and Principles of Guidance |
| Sci | 566 | Advanced Inorganic Chemistry I |
| Art | 521 | Contemporary Movements in Art |
| Geog | 530 | Seminar in Regional Geography—U.S.S.R. |

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- | | | |
|-------|-----|---|
| Geog. | 550 | Geographic Research and Reading—scheduled on an individual basis through the Chairman of the Geography Department |
|-------|-----|---|

TENTATIVE SCHEDULE—1960-1961**Spring Semester****Tuesday Evenings—5:30-7:10**

| | | |
|------|-----|--|
| SS | 532 | U.S.-British Commonwealth Relations |
| Guid | 533 | Evaluative Methods in Guidance I |
| Ed | 512 | Philosophical Foundations of Education |

Tuesday Evenings—7:30-9:10

| | | |
|------|-----|-------------------------------|
| Geog | 522 | World Resources |
| Sci | 555 | Plant and Animal Distribution |
| Guid | 535 | The Study of the Individual |

Thursday Evenings—5:30-7:10

| | | |
|------|-----|---|
| El | 541 | Special Problems in Elementary Social Studies |
| Bus | 521 | Economic Background of Business |
| EngS | 531 | Major Writers (Faulkner, Hemingway) |

Thursday Evenings—7:30-9:10

| | | |
|-----|-----|-------------------------------------|
| Psy | 531 | Psychology of the Exceptional Child |
| Ed | 515 | Elements of Research |
| Mus | 521 | Music Literature and Materials |

Saturday Mornings—9:00-10:40

| | | |
|------|-----|---|
| El | 544 | Recent Trends in Elementary Language Arts |
| SS | 573 | Regional Political Studies |
| Math | 584 | Insights Into Modern Mathematics |
| Sci | 532 | Interrelationships in Science |
| Guid | 538 | Organizing and Administering the Guidance Program |
| Ed | 515 | Elements of Research |

Saturday Mornings—11:00-12:40

| | | |
|------|-----|---|
| Geog | 551 | Professional Problems in Geographic Education |
| Ed | 516 | Statistical Methods in Education |
| Math | 532 | Advanced Calculus |
| Sci | 567 | Advanced Inorganic Chemistry II |
| Guid | 537 | Techniques Used in Counseling |
| EngS | 533 | British Drama Since 1880 |

GRADUATE STUDIES

at State College
Indiana, Pennsylvania

General Information

Location

Indiana State Teachers College is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

College Catalogue

Detailed information about the College, its academic requirements, the names of the faculty, and the facilities are described in the general catalogue. This publication may be obtained by writing to the Registrar.

Library

The College Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of over 60,000 volumes is supplemented by extensive holdings of periodicals, microfilms, microcards, curriculum materials, federal and state documents, association publications, and phonographic records.

A new library building is now under construction. The new library should lead to even more efficient service.

Graduate students are both encouraged and expected to spend time in the Library. Particular attention is given by librarians to graduate students in procurement of needed materials and the further development of proficiencies. The Library subscribes to the spirit and the letter of the **General Interlibrary Loan Code** which regulates the procurement of interlibrary loans.

With the exception of those books which are reserved for special purposes, all books circulate for two weeks; unbound periodicals for one day. Bound periodicals do not circulate. Students should register for a Library Card which will be needed to take out library materials.

Hours: 7:45 - 5:00; 7:00 - 9:00—Monday, Wednesday, and
Friday
7:45 - 5:00; 5:00 - 9:30—Tuesday and Thursday
7:45 - 5:00—Saturday
2:30 - 5:00—Sunday

Specific suggestions for the personal use of library materials may be found in the research manual which every graduate student is required to purchase.

Placement Service

Placement is a service offered by Indiana State Teachers College to its graduates without charge. The services of the Placement Bureau are available to students who received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate Program. Graduate students wishing to take advantage of placement service should complete the necessary forms with the Director of Placement.

Laboratory School

The Laboratory School with an enrollment of 350 students from kindergarten through tenth grade provides an opportunity for graduate students to observe and to participate in problems relating to teaching.

Audio-Visual Center

The Audio-Visual Center provides graduate students with an excellent collection of films, filmstrips, and other audio-visual equipment. Students may learn how to use audio-visual materials through courses offered in this area.

History of the Graduate Program

Graduate work was inaugurated at Indiana State Teachers College in September, 1957. At first the Graduate Program was limited to one in which the student could major in elementary education. By action of the State Council on Education, the Program has been expanded to include the various areas of secondary education as well.

The Graduate Program at Indiana offers work leading to the degree of Master of Education. A student may now complete the requirements for this degree by following any one of nine programs. These programs offer majors in English, Elementary Education, Mathematics, Biological Science, Physical Science, Science, Geography, Guidance, and Social Studies. The curriculums for these programs are explained in the following pages under the respective captions.

Admissions Policy for Graduate Study

Admission to the Graduate Study Program at Indiana is governed by the following policy which has been established by the Graduate Council:

1. The applicant must present a Bachelor's degree from a college or university that has been accredited by the Middle States Association of Colleges and Secondary Schools or the appropriate regional accrediting agency.

2. The applicant must present a transcript of his undergraduate work showing a 2.5 honor point value for all four years of his undergraduate work. The 2.5 assumes a grade of A to have 4 honor points per credit hour, a grade of B to have 3 honor points per credit hour, and a grade of C to have 2 honor points per credit hour. If the applicant's undergraduate record does not meet this 2.5 honor point value, or if he is a graduate of an unaccredited college, he may be admitted by making a satisfactory score on an entrance qualification examination.
3. The applicant must possess a Pennsylvania Teacher's Certificate or its equivalent.

Admission to Graduate Study does not automatically mean that the student is a candidate for the Master's degree at Indiana. Admission to candidacy for the degree may be granted only after six or more hours of graduate work have been successfully completed at Indiana.

Steps Necessary for Admission

1. The applicant will file an application for graduate work with the Director of Graduate Studies. Write to Dr. I. L. Stright, Director of Graduate Studies, for application forms.
2. Each applicant will present a transcript of all undergraduate work taken for the Bachelor's degree. Transcripts of previous work taken at Indiana need not be submitted.
3. Each applicant will have a personal interview with the Director of Graduate Studies or an assigned faculty member.

Admission to Candidacy for the Degree

The student should complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Submit a transcript of graduate work completed at other institutions.
3. Complete at least six semester hours of graduate work at Indiana.
4. Receive satisfactory course evaluations from the student's graduate instructors.
5. Submit a tentative program of study for the completion of the graduate program.

The application for admission to candidacy, the transcript of the graduate record, and the tentative program of study should be submitted by the student to the Director of Graduate Studies. Acceptance to candidacy requires the approval of the Director of Graduate Studies.

Semester Hours Required

A minimum of thirty semester hours of approved graduate work beyond a Bachelor's degree is required. A student who is teaching full-time will be limited to four semester hours of work per semester. The number of semester hours obtained during summer sessions shall not exceed the number of weeks of attendance.

Time Limit

Thirty semester hours must be completed within the five-year period immediately preceding the date when all the requirements for the degree are completed. For justifiable reasons the Graduate Council may extend this period.

Residence

A minimum of ten semester hours will be required to be taken during summer sessions. Courses taken prior to September, 1957, at Indiana State Teachers College may not be used as graduate work.

Scholarship Requirement

A candidate must have maintained a grade point average of 3.0, (B), in all work taken after receiving the Bachelor's degree. Only grades of "A", "B", or "C" are acceptable toward a Master's degree. Marking system: grade of "A", 4 quality points; "B", 3 quality points; "C", 2 quality points.

Permanent Certification Requirements

By action of the State Council on Education, all college certificates issued after October 1, 1959, will require the completion of at least twelve hours of post-baccalaureate work for permanent certification. The plan of the State Council is that after October 1, 1961 the requirement will be eighteen hours of post-baccalaureate work. By 1963 the requirement is to be stepped up to twenty-four, and by October 1, 1965 it will require the completion of thirty semester hours of post-baccalaureate work to make a college teaching certificate permanent. Many states have already gone this far in their requirements for a permanent teaching certificate.

Certainly all teachers who are able to qualify for admission to a graduate program and who are able to profit by graduate work should be encouraged to do the six to thirty hours in a graduate program and to qualify for an earned Master's degree.

When to Apply for Admission

Application forms for admission may be obtained from the Graduate Office. Applicants are urged to complete the necessary steps for admission as soon as possible. Write to Dr. I. L. Stright, Director of Graduate Studies, State Teachers College, Indiana, Pennsylvania.

Scholarships

The Board of Trustees of the Indiana State Teachers College has authorized the college Loan and Scholarship Committee to divert

some scholarship aid to meritorious graduate students. The following suggestions have been presented by the Loan and Scholarship Committee:

1. For the present that one \$50.00 scholarship be awarded each semester to that graduate student who best merits the award.
2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.
3. Nominations for the award be made to the committee by the Director of Graduate Studies.
4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for the Master of Education degree at Indiana.

Undergraduate Summer Program

Indiana State Teachers College maintains a comprehensive program of undergraduate instruction throughout the summer. Detailed information on the undergraduate program may be obtained by writing to the Dean of Instruction for the undergraduate Summer School Bulletin.

Veterans

Indiana is approved to offer training under the Korean G.I. Bill (Public Law 550) and Public Law 894 (disabled Korean veterans). Students who are entitled to training under one of these bills should contact the Veterans Counselor immediately after being accepted for admission to Indiana. The Office of the Veterans Counselor is in Room 101, Whitmyre Hall.

Auditors

Students not eligible to enroll for credit or not interested in credit may enroll as auditors. Course fees are the same as those required of persons enrolled for credit.

Housing Facilities

Room reservations can be made by writing to the Dean of Women. An advance registration deposit will not be required to reserve a room for summer sessions.

Students are not expected to room alone. Therefore, prospective students are urged to apply in pairs. In this way each student is assured a congenial roommate. Single applications are handled to the best possible advantage, but the college prefers that students make their own choices whenever possible. Applications for rooms are filed in the order in which they are received. Students are requested to write to the Dean of Women if there is any preference in rooms, and to indicate whether a room with or without water is desired. The college will give preferences to those whose reservation deposit has been paid in advance.

Men in the Indiana Graduate Program who desire housing facilities for the summer should write for information and reservations to the Dean of Men. All housing arrangements should be cared for as early as possible.

The housing fee, which includes room, board, and laundry, is \$14.00 per week.

Transfer of Credit

Six semester hours of graduate work taken at another accredited graduate school may be transferred to the Indiana Masters Degree Program. In all cases a request for transfer of credit must have approval of the Credit Evaluation Committee established by the Graduate Council.

Fees

| | |
|----------------------|---------------------------|
| Tuition Fee | \$15.00 per semester hour |
| Graduation Fee | \$ 5.00 |

Activity Fee (charged in summer sessions only) The activity fee for the regular summer session is \$7.00, and \$2.50 each for the pre- and post-session.

Late Registration Fee Up to \$5.00 will be assessed a student who fails to complete registration, including payment of fees, on the dates and within the hours specified in the published procedure for registration for any particular semester or term.

Masters Cap and Gown Fee Candidates who have been accepted by the Graduate Division for the Masters degree are required to purchase or rent from the college bookstore a Masters cap and gown to be worn at the graduation exercises. The cap and gown rental fee is nominal.

Masters Hood Fee Candidates who have been accepted by the Graduate Division for the Masters degree are required to purchase or rent from the college bookstore a Masters hood to be worn at the graduation exercises. The Masters hood rental fee is nominal.

Thesis or Research Project Binding Expense The binding of the required copies of the thesis or the research project is an expense which must be cared for by each graduate candidate. The current charge for binding a thesis is \$4.00 per copy and for binding a research project, \$1.00 per copy.

Course Load

During the academic year a graduate student who is teaching full time is limited to a maximum of four semester hours of graduate work per semester.

During the summer sessions a graduate student may earn up to a maximum of ten semester hours of work.

Programming and Registration

New applications for admission to the Indiana Graduate Program must be submitted in accordance with the calendar which appears in the beginning of this bulletin. Each graduate student also must submit to the Graduate Office a program of courses for approval for any given semester or summer session in advance of the time specified for registration and payment of fees.

Curriculum for Master of Education Degree

"The education of a teacher needs to be seen as a whole, for it is the final product which is important rather than the content of any one stage. The aim of the process is to produce men and women whose intellectual and cultural backgrounds are broad and deep, who know the material they are to teach and who can present it skillfully. The balance among the three factors in the objectives of a particular graduate student's program will vary with the candidate's previous background and to some extent in view of the age group and subjects he will teach, but none of the three may be neglected."¹

In each of the several programs leading to the Master's degree at Indiana, the student takes work in four categories. In the first category he must take at least 14 hours and may do up to 22 hours in Content Courses in the particular program in which he is working. In the Content Courses the student is expected to enrich and increase his knowledge in his subject area field.

The second is entitled Professional Studies in which he must complete from 4 to 10 hours of work. The work in this area is designed to supplement the Professional Studies of his undergraduate program and to increase the student's general knowledge of the teaching-learning process and of basic professional problems.

In the third place, all students must take at least one course in the area of Foundations of Education. Courses in this area are designed to help the student realize the important place of public education in America.

In the fourth area every student must complete the course entitled Elements of Research. Research plays an important part to the graduate student in any of the Indiana programs. The research training should enable the student to acquire the techniques of research as well as to be able to interpret and comprehend current research as it is applied to a teacher's particular position.

Objectives and Philosophy of the Graduate Program

The primary purposes of the Graduate Program at Indiana, which leads to the degree of Master of Education are to increase the competence of the general classroom teacher; to stimulate a greater awareness of educational philosophies and problems in order that teachers may assume more responsible roles in the educational pro-

¹Document 4.73, Middle States Association of Colleges and Secondary Schools. Commission on Institutions of Higher Education.

gram of their communities; and to provide an incentive for continued professional growth. Probably the principal characteristic of the Indiana Graduate Program is its primary objective—to help good teachers become better teachers.

Student Responsibility

The graduate student is expected to know the requirements for the degree he plans to earn. While the officers and teachers of the Graduate Division will endeavor to aid in any way possible, the responsibility for any error in his own enrollment or in the interpretation of the requirements rests with the student.

CURRICULUMS FOR THE MASTER OF EDUCATION DEGREE

BIOLOGY

Curriculum for Master of Education Degree

Students working for this degree with a major in Biology will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:

| | | |
|----------|--|--------|
| Sci 531 | Atomic Structure | 2 s.h. |
| Sci 532 | Interrelationships in Science | 2 s.h. |
| Sci 533 | History of Science, Scientific Literature, and Terminology | 2 s.h. |
| Sci 541— | | |
| 542 | Comparative Anatomy I, II | 4 s.h. |
| Sci 543— | | |
| 544 | Embryology I, II | 4 s.h. |
| Sci 545 | Microtechnique | 2 s.h. |
| Sci 551— | | |
| 552 | Taxonomy of Plants I, II | 4 s.h. |
| Sci 553— | | |
| 554 | Taxonomy of Animals I, II | 4 s.h. |
| Sci 555 | Principles of Plant and Animal Distribution | 2 s.h. |
| Sci 561 | Plant Structure | 2 s.h. |
| Sci 562 | Animal Physiology | 2 s.h. |
| Sci 563 | Physiology of Plants | 2 s.h. |
| Sci 564 | Problems in Biology | 2 s.h. |
- II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | |
|---------|--|-------------|
| Ed 516 | Statistical Methods in Education | 2 s.h. |
| Ed 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci 510 | Problems in Science Education | 2 s.h. |
- III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:

| | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:

| | | |
|--------|----------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------|--------|

ELEMENTARY EDUCATION

Curriculum for Master of Education Degree

Students working for this degree in Elementary Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. GENERAL STUDIES—fourteen to eighteen (14-18) semester hours of work in General Studies to be selected from the following courses:

| | | |
|----------|--|--------|
| Art 521 | Contemporary Movements in Art | 2 s.h. |
| Bus 521 | Economic Backgrounds of Business | 2 s.h. |
| HE 521 | Problems in Family Living | 2 s.h. |
| Mus 521 | Music Literature and Materials | 2 s.h. |
| EngS 521 | Modern European Fiction | 2 s.h. |
| Ed 522 | Principles and Practices in Speech Improvement | 2 s.h. |

| | | | |
|------|-----|---------------------------------------|--------|
| EngS | 523 | The Development of Modern English | 2 s.h. |
| EngS | 524 | Contemporary Poetry | 2 s.h. |
| EngS | 525 | The Early English Drama | 2 s.h. |
| FL | 521 | Language and Society | 2 s.h. |
| FL | 522 | Applied Linguistics | 2 s.h. |
| Geog | 521 | Advanced Human Geography | 2 s.h. |
| HPe | 521 | Advanced Seminar in Health and Safety | 2 s.h. |
| Math | 521 | Basic Concepts in Mathematics | 2 s.h. |
| Sci | 521 | Recent Advances in Science | 2 s.h. |
| SS | 521 | Contemporary American Issues | 2 s.h. |
| SS | 522 | Foreign Policy Studies | 2 s.h. |
| SS | 523 | Social Policy Studies | 2 s.h. |

II. PROFESSIONAL STUDIES—eight to ten (8-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | | |
|-----|-----|--|-------------|
| Ed | 516 | Statistical Methods in Education | 2 s.h. |
| Ed | 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| El | 531 | Curriculum Problems in Elementary Education | 2 s.h. |
| El | 533 | Reading Disabilities of Elementary School Children | 2 s.h. |
| El | 541 | Special Problems in Elementary Social Studies | 2 s.h. |
| El | 542 | Arithmetic in the Elementary School | 2 s.h. |
| El | 543 | Resource Materials in Elementary Science | 2 s.h. |
| El | 544 | Recent Trends in Elementary Language Arts | 2 s.h. |
| El | 545 | Experimental Studies in Art Education | 2 s.h. |
| El | 546 | Modern Procedures and Skills in Elementary Music | 2 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |

III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:

| | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |

IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:

| | | | |
|----|-----|----------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------|--------|

ENGLISH

Curriculum for Master of Education Degree

Students working for this degree with a major in English will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:

| | | | |
|------|-----|------------------------------------|--------|
| EngS | 521 | Modern European Fiction | 2 s.h. |
| EngS | 522 | Chaucer | 2 s.h. |
| EngS | 523 | The Development of Modern English | 2 s.h. |
| EngS | 524 | Contemporary Poetry | 2 s.h. |
| EngS | 525 | The Early English Drama | 2 s.h. |
| EngS | 526 | Shakespeare and His Contemporaries | 2 s.h. |
| EngS | 527 | Restoration Drama | 2 s.h. |
| EngS | 528 | Milton | 2 s.h. |
| EngS | 529 | Wordsworth and Keats | 2 s.h. |
| EngS | 530 | Tennyson and Browning | 2 s.h. |
| EngS | 531 | Major Writers | 2 s.h. |
| EngS | 532 | Styles of Acting | 2 s.h. |
| EngS | 533 | British Drama since 1880 | 2 s.h. |
| EngS | 534 | Types of the Novel | 2 s.h. |
| EngS | 535 | Criticism | 2 s.h. |

II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | | |
|------|-----|--|-------------|
| Ed | 516 | Statistical Methods in Education | 2 s.h. |
| Ed | 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| EngS | 542 | The Teaching of Composition | 2 s.h. |
| EngS | 543 | The Teaching of Literature | 2 s.h. |
| EngS | 549 | Bibliographical Methods in English | 2 s.h. |
| EngS | 545 | Seminar in Play Production I | 2 s.h. |
| EngS | 546 | Seminar in Play Production II | 2 s.h. |

III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:

| | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |

IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:

| | | | |
|----|-----|----------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------|--------|

GEOGRAPHY

Curriculum for Master of Education Degree

Students working for this degree with a major in Geography will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses: 14 semester hours in Geography (minimum) 8 additional hours in Geography and/or related or applied courses to be approved by department.

Geography Courses to be offered:

| | | | |
|------|------|--|-------------|
| Geog | 521 | Advanced Human Geography | 2 s.h. |
| Geog | 522 | Political Geography | 2 s.h. |
| Geog | 523 | Urban Geography | 2 s.h. |
| Geog | 525— | | |
| | 545 | Seminars in Regional Geography, Africa, U.S.S.R. | 2 s.h. |
| Geog | 550 | Geographic Research and Reading | 1 or 2 s.h. |
| Geog | 552 | Seminar in World Resources | 2 s.h. |
| Geog | 554 | Physiography of the United States | 2 s.h. |
| Geog | 555 | Advanced Cartography | 2 s.h. |
| Geog | 556 | Map and Photographic Interpretation | 2 s.h. |
| Geog | 563 | Field Course in Geography | 2 s.h. |

Courses above 545 are not recommended for other than geography, social science or science majors.

II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | | |
|------|-----|---|-------------|
| Ed | 516 | Statistical Methods in Education | 2 s.h. |
| Ed | 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Geog | 551 | Professional Problems in Geographic Education | 2 s.h. |

III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:

| | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |

IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:

| | | | |
|----|-----|----------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------|--------|

GUIDANCE

Curriculum for Master of Education Degree

Students working for this degree with a major in Guidance will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:

| | | | |
|------|------|---|--------|
| Guid | 531 | Philosophy and Principles of Guidance | 2 s.h. |
| Guid | 532 | Psychology of Growth and Development | 2 s.h. |
| Guid | 533— | | |
| | 534 | Evaluative Methods in Guidance I, II | 4 s.h. |
| Guid | 535 | The Study of the Individual | 2 s.h. |
| Guid | 536 | Occupational and Educational Information | 2 s.h. |
| Guid | 537 | Techniques Used in Counseling | 2 s.h. |
| Guid | 538 | Organizing and Administering the Guidance Program | 2 s.h. |
| Guid | 539 | Group Guidance | 2 s.h. |
| Guid | 540 | Clinical Techniques in Guidance | 2 s.h. |
| Guid | 551 | Individual Diagnosis in Guidance | 2 s.h. |

*Ed 516 is required of all Guidance majors, and is a prerequisite for Evaluative Methods in Guidance.

*Psy 531 and Psy 532 might be used in lieu of some of the above where they have already been taken at the undergraduate level, and where all requirements of the Professional Area have been completed. They could not, however, be used to satisfy requirements in both areas where the credits overlap.

II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | | |
|-------|-----|--|-------------|
| *Ed | 516 | Statistical Methods in Education | 2 s.h. |
| Ed | 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| **Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| **Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Psy | 533 | The Psychology of Personality | 2 s.h. |

III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:

| | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |

IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:

| | | | |
|----|-----|----------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------|--------|

MATHEMATICS**Curriculum for Master of Education Degree**

Students working for this degree with a major in Mathematics will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. **SUBJECT MATTER CONCENTRATION AREA**—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:

| | | |
|-----------|---------------------------------------|--------|
| Math 521 | Basic Concepts in Mathematics | 2 s.h. |
| Math 530 | Differential Equations | 2 s.h. |
| Math 531— | | |
| 532 | Advanced Calculus I, II | 4 s.h. |
| Math 533 | Infinite Series | 2 s.h. |
| Math 534— | | |
| 535 | Functions of a Complex Variable I, II | 4 s.h. |
| Math 536 | Functions of a Real Variable | 2 s.h. |
| Math 560 | Foundations of Algebra | 2 s.h. |
| Math 561 | Modern Algebra | 2 s.h. |
| Math 571 | Modern Geometries | 2 s.h. |
| Math 572 | Projective Geometry | 2 s.h. |
| Math 573 | Topology | 2 s.h. |
| Math 580 | Symbolic Logic | 2 s.h. |
| Math 581 | Advanced Statistics | 2 s.h. |
| Math 582 | Theory of Probability | 2 s.h. |
| Math 583 | Linear Programming | 2 s.h. |
| Math 584 | Insights Into Modern Mathematics | 2 s.h. |
- II. **PROFESSIONAL STUDIES**—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | |
|----------|--|-------------|
| Ed 516 | Statistical Methods in Education | 2 s.h. |
| Ed 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Math 510 | Seminar in Mathematics I (Arith. and Alg.) | 2 s.h. |
| Math 511 | Seminar in Mathematics II (Sr. H.S. Math.) | 2 s.h. |
- III. **FOUNDATIONS OF EDUCATION**—two (2) semester hours of work to be selected from the following courses:

| | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. **RESEARCH TECHNIQUES**—the following course is required. It should be scheduled early in the student's program:

| | | |
|--------|----------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------|--------|

PHYSICAL SCIENCE**Curriculum for Master of Education Degree**

Students working for this degree with a major in Physical Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. **SUBJECT MATTER CONCENTRATION AREA**—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:

| | | |
|----------|--|--------|
| Sci 531 | Atomic Structure | 2 s.h. |
| Sci 532 | Interrelationships in Science | 2 s.h. |
| Sci 533 | History of Science, Scientific Literature, and Terminology | 2 s.h. |
| Sci 546— | | |
| 547 | Biochemistry I, II | 4 s.h. |

- | | | |
|----------|---|--------|
| Sci 548— | | |
| 549 | Physical Chemistry I, II | 4 s.h. |
| Sci 565— | | |
| 566 | Advanced Inorganic Chemistry I, II | 4 s.h. |
| Sci 567— | | |
| 568 | Analytical Mechanics I, II | 4 s.h. |
| Sci 569— | | |
| 570 | Electricity and Magnetism I, II | 4 s.h. |
| Sci 571 | Advanced Laboratory Practice | 2 s.h. |
| Sci 572 | Demonstrations in Chemistry and Physics | 2 s.h. |
- II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | |
|---------|--|-------------|
| Ed 516 | Statistical Methods in Education | 2 s.h. |
| Ed 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci 510 | Problems in Science Education | 2 s.h. |
- III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:
- | | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:
- | | | |
|--------|----------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------|--------|

SCIENCE

Curriculum for Master of Education Degree

Students working for this degree with a major in Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses:
- | | | |
|---|-------------------------------|------------|
| Sci 531 | Atomic Structure | 2 s.h. |
| Sci 532 | Interrelationships in Science | 2 s.h. |
| Other courses to be selected from the major in Biology and Physical Science at discretion of candidate's committee. | | 14-22 s.h. |
- II. PROFESSIONAL STUDIES—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | |
|---------|--|-------------|
| Ed 516 | Statistical Methods in Education | 2 s.h. |
| Ed 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci 510 | Problems in Science Education | 2 s.h. |
- III. FOUNDATIONS OF EDUCATION—two (2) semester hours of work to be selected from the following courses:
- | | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. RESEARCH TECHNIQUES—the following course is required. It should be scheduled early in the student's program:
- | | | |
|--------|----------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------|--------|

SOCIAL STUDIES

Curriculum for Master of Education Degree

Students working for this degree with a major in Social Studies will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. **SUBJECT MATTER CONCENTRATION AREA**—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the following courses: A minimum of 12 semester hours is to be elected in the Social Studies field. A maximum of four semester hours may be elected in allied fields (Geography, English, Foreign Language). Courses must be elected in four of the five Social Studies divisions.

HISTORY

| | | |
|-------|--------------------------------------|--------|
| SS531 | Economic & Social Hist. of Penna. | 2 s.h. |
| SS532 | U.S.-British Commonwealth Relations | 2 s.h. |
| SS533 | Social & Intellectual Hist. of U. S. | 2 s.h. |
| SS541 | Modern European Problems | 2 s.h. |
| SS542 | Contemporary Latin American Problems | 2 s.h. |
| SS543 | Modern Asian-African Problems | 2 s.h. |

ECONOMICS

| | | |
|-------|------------------------------|--------|
| SS551 | International Economics | 2 s.h. |
| SS552 | Comparative Economic Systems | 2 s.h. |
| SS553 | Contemporary Economic Issues | 2 s.h. |

POLITICAL SCIENCE

| | | |
|-------|-------------------------------|--------|
| SS521 | Contemporary American Issues | 2 s.h. |
| SS571 | Foreign Policy Studies | 2 s.h. |
| SS572 | Comparative Political Studies | 2 s.h. |
| SS573 | Regional Political Studies | 2 s.h. |

SOCIOLOGY

| | | |
|-------|-----------------------|--------|
| SS561 | Social Policy Studies | 2 s.h. |
| SS562 | Criminology | 2 s.h. |
| SS563 | Intergroup Relations | 2 s.h. |

PHILOSOPHY

| | | |
|-------|--------------------------------|--------|
| SS581 | Problems in Logic | 2 s.h. |
| SS582 | Problems of Ethics | 2 s.h. |
| SS583 | American Philosophical Thought | 2 s.h. |

- II. **PROFESSIONAL STUDIES**—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

| | | |
|---------|---|-------------|
| Ed 516 | Statistical Methods in Education | 2 s.h. |
| Ed 518 | Production and Use of Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| SS 510 | New Viewpoints in Social Studies Instruction | 2 s.h. |
| SS 514 | Research Methodologies in the Social Sciences | 2 s.h. |

- III. **FOUNDATIONS OF EDUCATION**—two (2) semester hours of work to be selected from the following courses:

| | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |

- IV. **RESEARCH TECHNIQUES**—the following course is required. It should be scheduled early in the student's program:

| | | |
|--------|----------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------|--------|

Research Requirements for the Degree

The candidate for the Master of Education degree at Indiana must satisfy the research requirements as established by the Graduate Council. He has a choice of writing a thesis on a problem of his particular interest for which two to four hours of graduate credit may be given. It is thus possible for him to complete the requirements for the degree by doing twenty-six semester hours in course work plus a four-hour thesis. If he elects not to write a thesis, he then must complete thirty semester hours in courses and in addition must fulfill the research requirement by preparing a research project.

The Thesis

After filing application for admission to candidacy for the degree, the candidate must then file a research option form in which he indicates his choice of doing a Master's degree thesis or the research project. If he elects to do a thesis he must prepare an outline of the proposed thesis including the identification of the problem which he proposes to investigate, his proposed procedures for carrying out the investigation, and the manner in which he expects to interpret the results. This is then taken to a member of the graduate faculty selected by the candidate with the approval of the Director of Graduate Studies. The member of the graduate faculty selected will serve as the candidate's adviser and chairman of the thesis committee. In addition to the adviser the thesis committee consists of the department chairman in the student's field, the coordinator of research, and other members of the graduate faculty. This committee meets with the candidate, studies the proposed problem and approves or disapproves the thesis. If approval is given, the committee indicates the number of credit hours to be given.

The Professional Project

For those who do not do a thesis the professional project is an important part of the Master's degree program offered by Indiana State Teachers College. This feature of the graduate program gives the student an opportunity to demonstrate his professional competence in a practical situation while teaching or in a laboratory situation while in residence. The purpose of the professional project is to influence and improve school practice and procedures.

The student is encouraged to select some area in a school situation which needs study and improvement. For those in the field, the project should be developed and put into practice, so that concrete and measurable results may be obtained.

For those not teaching at the time, the project should demonstrate the ability of the student to select, organize, and present the results of professional investigation in an area of major interest.

Before it is officially undertaken, the project must be planned with the candidate's adviser, and the plan must be formally approved.

ed by the adviser, the Director of Graduate Studies, and a project committee.

Guidelines to students for completing a professional project:

1. Course in "Elements of Research": While taking this course the student should decide whether he elects to do a thesis for credit or a professional project. In this course he should formulate his ideas on the selection of a topic. He should learn how to use research materials, to prepare a project outline, and to understand the nature of the formal written report.

2. Plan for the project: The choice of topic and plan of the project should be worked out in consultation with the student's adviser. The student should present, in outline form, a "Research Proposal."

3. The student secures approval of the plan from the adviser, the Director of Graduate Studies, and project committee.

4. The student should attend any seminars which deal with the preparation of a thesis or research project.

5. The student should begin to write the report of his project as soon as possible. Rough drafts should be submitted to the adviser for correction and suggestions. The student should follow Campbell's "Form and Style in Thesis Writing."

6. Acceptance of project: Four copies of the final project should be submitted, through the advisor, to the Director of Graduate Studies. Final acceptance rests with a graduate committee and the Director of Graduate Studies.

An acceptable project should show evidence that the candidate:

1. Has comprehended the essentials of his problem, has followed a well organized plan of work, and has presented satisfactory solutions.

2. Has made an independent and intensive study of his problem.

3. Has made a comprehensive study of the literature in his field.

4. Has shown a command of effective and fluent English with the ability to write in a professional style.

5. Has reached conclusions and recommendations that are justified by his findings and experiences.

6. Has a practical working knowledge of research procedures.

7. Has produced a project of definite value to the educational profession.

Final Conference

After the student has submitted a final draft of his thesis or research project, a final conference is held at which time the student has the opportunity to orally present the results of his thesis or research project. In the case of a thesis, members of this conference are the student's thesis committee. For the research project, the final conference is conducted by the student's adviser plus two or three other members of the graduate faculty named by the Director of Graduate Studies.

Deadline Dates for Final Drafts

Students who expect to receive the Masters degree at the January Commencement should file the final draft of their research project or thesis not later than December 1. For those who expect to receive the degree at the May Commencement, the final drafts must be submitted by April 1. Those expecting to graduate in August must submit their final drafts by July 15.

The Advisory System

The purpose of the advisory system is to insure that the student's work follows a coherent, well-balanced, and unified program for his professional growth and development. The advisory responsibility falls into two parts:

1. Prior to admission to candidacy: At this stage the advisory function is essentially the responsibility of the Director of Graduate Studies and includes the following:

- a. To assist the student in preparing his plan of graduate study.
- b. To recommend the student for admission to candidacy upon completion of the necessary requirements.
- c. To aid the student in the selection of an adviser for completion of degree requirements after he is accepted for candidacy.
- d. To encourage the student to attend seminars for the discussion of the nature of the graduate program.

2. After acceptance of candidate for the degree: The graduate student will be assigned, or may choose with the approval of the Director of Graduate Studies, a faculty adviser to assist him in his graduate work. Necessary changes in advisers may be made at the discretion of the Director of Graduate Studies. This adviser should be competent in the student's area of specialization, as his primary responsibility is to assist the student in choosing, preparing, and presenting his thesis or project in oral and written form as a demonstration of professional competence.

COURSE DESCRIPTIONS

ART

Art 521 Contemporary Movements in Art

Current philosophies and trends in fine arts and art education as they apply to human growth and development will be studied. Research and round table discussion of contemporary art forms will help the student to discover the concepts involved in art expression and how they evolved.

El 545 Experimental Studies in Art Education

(See Elementary Education)

BUSINESS

Bus 521 Economic Backgrounds of Business

This course is designed to provide a thorough overview of the economic environment in which business and other agencies must operate. The student will gain a broad perspective of business operations through such topics as business organization and management, consumption of goods, business risks, the business cycle, budgeting and investments.

EDUCATION

Ed 511 Historical Foundations of Education

A study of the European influence on early American education, the development of the various types of schools and their modifications as influenced by educational movements at home and abroad, and the leaders connected with these movements will be presented.

Ed 512 Philosophical Foundations of Education

This course will consider the new developments in scientific methodology, theories of curriculum and method, and the development of principles upon which to base instruction.

Ed 513 Social Foundations of Education

This course will deal with those social and cultural forces which influence education and the ways in which education has been affected by them. Particular stress will be placed upon current problems as they relate to the entire educational system and to curricular problems and practices in today's schools.

Ed 515 Elements of Research

Selection of a research problem, collection of data, types of research, the research report, and the use of the library in connection with the research problems will be studied. Elements of statistics

are introduced. This course provides background for the preparation of the thesis or research project, and enables the student to become an intelligent consumer of the products of educational research.

Ed 516 Statistical Methods in Education

The basic statistics needed by workers in education and psychology will be developed. A study will be made of central tendency, including the mean, median, and mode, as well as of measure of dispersion. Correlation techniques will be studied extensively as well as newer statistical methods. Emphasis will be placed on the use of statistical techniques studied and on statistical interpretation. Prerequisite or concurrent registration: Elements of Research.

Ed 518 Production and Use of Audio-Visual Materials

This course will deal with the production and proper utilization of both projected and non-projected visual materials and advanced techniques in producing tape recordings. Students will have the opportunity to produce projects with bulletin board materials, colored slides, filmstrips, dry mounted black and white pictures, wet mounted pictorial materials, lantern slides, transparencies, feltboards, marionettes and puppets, models, dioramas, and tape recordings. The work will consist of both lecture and laboratory experiences. Prerequisite: Audio-Visual Education.

Ed 522 Principles and Practices in Speech Improvement

This course will provide for a study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or hearing. Library research, project work, demonstrations and experimentation will be heavily stressed.

Ed 550 Thesis

Students writing a thesis for credit will register for this course.

ELEMENTARY

El 531 Curriculum Problems in Elementary Education

The curriculum will be studied in relation to local needs and resources. Special attention will be given to contemporary forms of organization and procedures for curriculum development. A student will concentrate his studies on a specific problem or area of interest.

El 533 Reading Disabilities of Elementary School Children

This course will consider the identification, causes, and correction of reading disabilities. The mechanics, psychology of reading, and emotional factors involved will be studied.

El 541 Special Problems in Elementary Social Studies

The content of the social studies in the elementary school as it contributes to world understanding and the American cultural heritage will be included in this course. Each student will concentrate his studies on a special problem or area of interest.

El 542 Arithmetic in the Elementary School

An overview of the development of arithmetic as a part of the elementary school curriculum will be presented. It will emphasize curriculum development based upon research in arithmetic, special problems in the teaching of arithmetic and the literature which should be known to a teacher of arithmetic. Prerequisite: The Teaching of Arithmetic.

El 543 Resource Materials in Elementary Science

This course is designed to give the elementary teacher experience with the literature, equipment, and materials used in teaching science in the elementary school. References dealing with experiments, demonstrations, and identification of plants and animals will be studied. Experiments and demonstrations will be emphasized. Science kits will be prepared which contain basic equipment that may be used in classroom situations. Field trips will be taken to observe materials in real life situations. Given in summer school only.

El 544 Recent Trends in Elementary Language Arts

This course will deal with trends, problems, and recent contributions of research in the language arts. Areas will include elementary English, spelling, penmanship, and children's literature. Each student will concentrate his studies on a special problem or area of interest.

El 545 Experimental Studies in Art Education

Teachers will undertake art experiences in various media as they are adapted to the provision of art experiences for the child. Emphasis will be placed on the stages of growth, type of motivation, and ways of administering stimuli. The class will study the exceptional child to learn to recognize and encourage evidences of art potential as well as wholesome self-expression.

El 546 Modern Procedures and Skills in Elementary Music

The purpose of this course is to provide the elementary teachers with new developments and techniques recommended for music education.

ENGLISH

EngS 521 Modern European Fiction

This course offers an intensive study in translation of the major fiction writers of the twentieth century exclusive of British and American. The older generation—Proust, Gide, Kafka, and Mann—will be studied in relation to representatives of contemporary Europeans such as Camus, Moravia, Hesse, Silone, and Pasternak.

EngS 522 Chaucer

The works of Geoffrey Chaucer are studied with special attention to the **Canterbury Tales** and **Troilus and Criseyde**. Pronunciation, versification, language, and textual problems will receive consideration.

EngS 523 The Development of Modern English

The course will study the origins and growth of the English language and the sources of English words. An examination will be made of the changes in English usage, with emphasis on the varieties of current spoken and written usage as a result of geographical, class, and situational differences.

EngS 524 Contemporary Poetry

This course provides for special studies in the work of twentieth-century American and British poets.

EngS 525 The Early English Drama

The development of the English drama from 900 to 1500, with attention to classical and indigenous influences on specific plays and types of plays, will be studied.

EngS 526 Shakespeare and His Contemporaries

Plays by Shakespeare and some of his predecessors, contemporaries, and successors will be read. Plays will be chosen from the work of Marlowe, Lyly, Greene, Kyd, Jonson, Dekker, Beaumont, Fletcher, Webster, and, of course, Shakespeare.

EngS 527 Restoration Drama

The British theatre and its plays from 1660-1700 will be studied. Among the playwrights will be Dryden, Otway, Congreve, Shadwell, Wycherly, Farquhar, and Vanbrugh.

EngS 528 Milton

This course provides for special studies in the prose and poetry of John Milton, with attention paid chiefly to **Paradise Lost** and the lyrics.

EngS 529 Wordsworth and Keats

This course will concentrate on the poetic values, religious conflicts, and social issues that affected the writings of two major Romantic poets. Practice will be given in analyzing form and tone as a guide to meaning.

EngS 530 Tennyson and Browning

This course provides for special studies in the poetry of Tennyson and Browning. Attention is given to the Victorian milieu and to the development of Tennyson's and Browning's philosophy as it is reflected in their work.

EngS 531 Major Writers

This course provides for special studies in the work of eminent literary figures, such as Hawthorne, Melville, Yeats, Hardy, and Goethe. Only one or two writers are studied each time the course is offered.

EngS 532 Styles of Acting

This course will deal with the wide variety of styles of acting that are required in a well-balanced program of play selection. Emphasis will be upon materials and methods that will help an actor solve the problems of the different periods, styles, and types of acting.

EngS 533 British Drama Since 1880

A study of the structure of the play and the elements of action, theme, and character in representative plays of various periods and cultures.

EngS 534 Types of the Novel

Standards are established for such genres of the novel as the Historical Romance, the Novel of Ideas, the Novel of Manners, Satiric Fantasy. English and American novels are read in several of these categories.

EngS 535 Criticism

This is a course in the principles of literary criticism. Attention will be paid to major works of critical theory and to practice in the application of these principles.

EngS 542 The Teaching of Composition

This course is designed for secondary teachers of English. It will cover problems encountered in teaching composition in the secondary school. How to motivate practical and creative writing, how to make assignments, how to do a constructive job of grading papers,

and how to handle various types of writing will be considered. Any special problems that individual teachers have will be given first consideration.

EngS 543 The Teaching of Literature

This course is designed primarily for those already teaching English on the secondary level. In covering current professional material the course will deal with such specific problems as getting students to read, handling reading reports, and methods of teaching poetry, fiction, drama, non-fiction, together with other problems encountered by the members of the class individually.

EngS 545, 546 Seminar in Play Production I, II

This course assumes that the student has had some experience in directing plays. Its aim is to provide a basis for comparison, a method of evaluating one's own procedures, and a clear-cut organizational pattern which may be helpful in teaching directing.

Course II will stress the aesthetic principles of play directing.

EngS 549 Bibliographical Methods in English

This course offers the student practical training in the special methods and materials of research in English.

FOREIGN LANGUAGES

FL 521 Language and Society

The work of this course is designed to inform the student as to the salient facts of language and its fundamental role in the development and continuity of society and culture. Some points considered are: language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, language and religion, and systems of writing.

FL 522 Applied Linguistics

This course is designed to contribute to two closely related objectives: a practical introduction to the reading of a foreign language (normally French or Spanish); and an examination of certain linguistic phenomena with particular reference to the foreign language in question and English. Attention is given to similarities and differences between the foreign language and English, their mutual influences, the cultural implication of these influences, and how language reflects culture and in turn modifies it.

GEOGRAPHY

Geog 521 Advanced Human Geography

Advanced Human Geography will develop case studies of particular regions in various parts of the world and will analyze where

appropriate, the effect of geography on major events in the news. The course builds onto the principles of geography learned in undergraduate World Geography.

Geog 522 Political Geography

Geographic factors and conditions are analyzed as they are related to the character and function of states. Political institutions are evaluated in light of modern and historic geographic conditions. Emphasis is given to the great world powers and geopolitical thought.

Geog 523 Urban Geography

An analysis is made of city types, patterns, and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized.

Geog 525-545 Geography Seminars

Seminars are designed to let the student develop to his greatest potential. Each region is examined in detail for soil, topography, climate, vegetation, population, and the interrelationships evolved. Great stress is placed on individual study and class discussion rather than lecture.

Geog 525—Africa, South of the Sahara

Geog 526—India, Pakistan and Indo-Chinese Peninsula

Geog 527—Mexico, Middle America and West Indian Islands

Geog 528—Eastern South America

Geog 529—Andean South America

Geog 530—U.S.S.R.

Geog 531—Northwestern Europe

Geog 532—Southern Europe

Geog 533—The Arab World

Geog 534—China, Korea and Japan

Geog 535—Australia and Pacific Islands

Geog 536—Polar Regions

Geog 537—Eastern United States

Geog 538—Western United States

Geog 539—Canada

Geog 550 Geographic Research and Reading

Geographic research tools and methods are emphasized to develop adequate ability to carry out individual research. A substantial knowledge of the outstanding literature in the field and the development of an individual philosophy in the field are also desirable. This course is offered every semester for Geography majors. Arrangements for taking this course must be made through the head of the department.

Geog 552 Seminar in World Resources

World resource exploitation and utilization of the agricultural, mineral, forestry, and fishery industries are treated. Problems, such as energy utilization, food distribution, population growth, regional planning, factory location, conservation measures, and foreign trade, are considered.

Geog 554 Physiography of United States

This course presents a detailed study of the landforms and surface waters of the United States. The origin, classification, and structure of mountains, plains, hills, coast lines, rivers, lakes are discussed as well as the agents causing their birth and subsequent modification, agents such as glaciers, stream erosion, wind abrasion, tides and ocean waves.

Geog 555 Advanced Cartography

This course covers (1) map preparation to illustrate geographic reports; (2) map preparation from field data (triangulation and plant table); (3) map preparation from aerial photographs; (4) map preparation from existing cartographic materials and intelligence data. Modern techniques of plastic relief, scribing, color separation, as well as the capabilities of the newest cartographic and photogrammetric instruments are presented. Dependent upon class size and student interest, a field trip through one of the modern mapping agencies of the United States government may be arranged.

Geog 556 Map and Photographic Interpretation

Maps and aerial photographs enable the geographer to correctly grasp the spatial perspective of the landscape; they enable him to garner much geologic, economic, land use, transportation, strategic information quickly without costly, lengthy field trips—and often for areas that may be currently closed because of political or other animosity. This course develops the ability of the geographer to obtain a maximum of correct information by becoming familiar with the tools of photogrammetry and aware both of the limitations and usefulness of maps and aerial photographs.

Geog 563 Field Course in Geography

The use of field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of areal patterns of geographic phenomena.

GUIDANCE**Guid 531 Philosophy and Principles of Guidance**

This course is designed to give an over-all view of the role of guidance in the educational program. It deals with the function and implementation of guidance services, duties of guidance functionaries, types of guidance organizations, and the relation of the curriculum to guidance and of the teachers to the guidance worker. Guid-

ance practices used in helping solve student problems of adjustment are stressed. This course is prerequisite for all other courses in guidance.

Guid 532 Psychology of Growth and Development

This course is designed to provide insight into how people grow and develop from infancy to old age. Maturation, learning, and their interrelationships are studied. Physical growth patterns are noted along with emotional, intellectual, and social development with implications for the school, community, and home.

Guid 533 Evaluative Methods in Guidance I

Emphasis in this course is placed on intelligence, personality, and special abilities testing. Consideration is given to source, cost, reliability, validity, standardization, and other pertinent aspects. Prerequisite: Education 516.

Guid 534 Evaluative Methods in Guidance II

This course will be a selective and intensive study of achievement tests, vocational interest tests, rating scales and other evaluative instruments useful in guidance work. Emphasis will be placed upon criteria for selecting and evaluating tests, and upon interpreting them for purposes of diagnosis and counseling. Prerequisite: Education 516.

Guid 535 The Study of the Individual (Case Studies)

This course is designed primarily to study the principles, problems, methods, and content involved in developing case studies. Consideration will be given to the kinds and the scope of data needed for understanding and to the role and the relationships of the individuals concerned.

Guid 536 Occupational and Educational Information

In this course emphasis is placed upon the collection and evaluation of occupational material, its proper filing, and the uses of such information in vocational counseling. Educational information relating to vocational choice and preparation; sources of occupational literature; occupational studies; and vocational surveys are included in the course. Prerequisite: Guidance 531.

Guid 537 Techniques Used in Counseling

This course deals with the behavior of individuals and with the theories and principles of counseling, particularly as they may apply to the work of the classroom teacher and guidance counselor in the public schools. Personnel techniques used with individuals and with groups will be studied, and attention to both diagnosis and treatment will be given. Testing techniques treated in other courses will

not be taught; their contribution in counseling, however, will be considered. Prerequisite: Guidance 533, 534.

Guid 538 Organizing and Administering the Guidance Program

This course includes the purposes, services, lines of authority, types of organization, personnel, and physical equipment in guidance. Both wide and specialized approaches are considered. Prerequisites: Education 516; Guidance 533, 534.

Guid 539 Group Guidance

This course deals with the major objectives of guidance through group procedures and the common types of group-guidance activities which will lead to the establishment of student readiness for individual counseling. Articulation programs, orientation, home room activities, courses in adjustment problems, the extra-curricular program, and special programs as career and college days are considered. Prerequisite: Guidance 531.

Guid 540 Clinical Techniques in Guidance

This course offers practical experience in the use of clinical instruments in the field of guidance. Prerequisite: Approval by Director of the Psychological Clinic.

Guid 551 Individual Diagnosis in Guidance

Opportunity is provided in this course for intensive study and analysis of case materials involving the personal, social, educational, and vocational problems and adjustment of elementary, secondary, and college students. Possible interpretations of behavior and recommendations for the individual's future will be discussed. Prerequisites: Guidance 533, 534, 535.

HEALTH—PHYSICAL EDUCATION

HPE 521 Advanced Seminar in Health and Safety

This course will explore the basic health and safety needs of students. It will deal primarily with the results of a study of scientific articles on health which have appeared in medical, public health, and allied professional journals over a period of five years. The chief purpose is to orient the student to this vast field of ever changing data in health and safety and to have him utilize it for his own consumption.

HOME ECONOMICS

HE 521 Problems in Family Living

Transportation, communication, and technological advances with labor saving and other devices are bringing so many possibilities and changes to the home that it is necessary constantly to challenge the home's adjustment. The course will utilize knowledge and

research from science, medicine, technology, sociology, economics, art, and psychology in being better able to: provide food, shelter, clothing; utilize time, energy, and material resources; and increase day to day satisfactions in living. Seminars and the problem solving method will be used.

MATHEMATICS

Math 521 Basic Concepts in Mathematics

This course aims to develop an understanding of mathematics as a system of thought and will include such topics as kinds of number, scales of notation, the nature of arithmetic operations, basic principles of general numbers and measurements, the history and development of number and some of the contributions to our civilization, and elementary discussions of mathematics developed in the past one hundred years.

Math 530 Differential Equations

This course deals primarily with the solution of differential equations of the first and second order and linear equations with constant coefficients, with applications to geometry and physics.

Math 531-532 Advanced Calculus I, II

The concepts to be developed in this course are considered basic in analysis. Discussions will pertain to limits and continuity, differential and integral calculus of functions of several variables, line and surface integrals, and an introduction to the theory of infinite series.

Math 533 Infinite Series

A development of the theory of the convergence of series. Among the topics considered are: sequences; series of positive, arbitrary, and variable terms; double series, power series; types of convergence and the associated operations with series.

Math 534-535 Functions of a Complex Variable I, II

This course is a study of the properties of complex numbers and functions, including: analytic and elementary functions, the Cauchy-Goursat integral theorem, contour integrals, power series, residues and poles, conformal mappings, Schwarz-Christoffel transformation, and analytic continuation.

Math 536 Functions of a Real Variable

A systematic development of some of the modern theories of differentiation and integration, which proceeds as follows: the theory of sets, limits, continuity, derivatives, convergence of series, implicit function theorems, and the Lebesgue and Riemann integrals.

Math 560 Foundations of Algebra

Intended as an introduction to some of the concepts of modern algebra, this course will be a discussion of the theory of matrices and linear transformations, linear spaces, and bilinear and quadratic forms.

Math 561 Modern Algebra

The discussion of the topics of Math 560 will be continued, followed by a survey of abstract algebraic structures such as groups, rings, and fields.

Math 571 Modern Geometries

This course will be a study of the invariant properties of geometric forms under transformation. Linear dependence of points and lines, harmonic division, and cross ratio will be treated, followed by an introduction to projective geometry, metric geometry of the complex plane, affine and space geometry.

Math 572 Projective Geometry

The topics of Math 571 will be developed in more detail from the synthetic point of view. Discussions will concern: projection and section, ideal elements, projectively related forms, harmonic sets and resulting metric properties, polarity, involution, and conic sections from a projective standpoint.

Math 573 Topology

A study of the properties of geometrical figures under topological transformations will be conducted, considering the theory of sets, topological spaces, continuous mappings, compactness, connectedness, and function spaces.

Math 580 Symbolic Logic

A survey will be made of the classical and the modern systems of logic and their use in testing the validity of mathematical reasoning. Algebraic structures in logical systems will be discussed, followed by a brief study of effective computability, Godel's theorem, and related topics.

Math 581 Advanced Statistics

The theory of modern statistical analysis will be developed. The major areas of discussion will be: distribution functions, sampling theory, statistical inference, regression theory, and an introduction to multivariate statistical analysis.

Math 582 Theory of Probability

This course deals with the basic concepts of probability theory with emphasis on practical applications. Topics include: the theory

of permutations and combinations, distribution functions, Bernoulli's and Bayes' theorems, and the normal and poisson distributions.

Math 583 Linear Programming

This will be a basic presentation of the theoretical, computational, and applied areas of linear programming. The simplex method and other computational techniques will be discussed. Applications will pertain to: transportation type, assignment, and combinatorial problems, scheduling and inventory theory, and linear programming.

Math 584 Insights Into Modern Mathematics

This course involves a study and discussion of the twenty-third yearbook of the National Council of Teachers of Mathematics. Topics include the concept of number operations with sets, limits, functions, and topology. This course provides reference material for both the content and the spirit of modern mathematics.

MUSIC

Mus 521 Music Literature and Materials

The purpose of this course is to further enhance the musical background of the elementary teacher through acquaintance with suitable literature and materials.

El 546 Modern Procedures and Skills in Elementary Music

(See Elementary Education)

PSYCHOLOGY

Psy 531 Psychology of the Exceptional Child

This course is designed to aid the student in meeting the needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational development. Consideration will be given to methods of instruction and curricular material.

Psy 532 Studies in Child Adjustment and Guidance

This course considers the problems of child adjustment in relation to causative factors. It stresses the dynamics of the child's need to make an adequate adjustment in his relations with other children and adults. The various causes of childhood maladjustment and the classroom teacher's function in remedial treatment will be explored. Case material will be used with direct application to specific problems.

Psy 533 The Psychology of Personality

A consideration of the varied approaches to the problem of understanding personality. The objective will be to give the student

an overview of each of the methods of analyzing personality that has, over an extended period of time, withstood careful scrutiny and investigation. The course will undertake some measure of integration by indicating similarities among the various approaches.

SCIENCE

Sci 521 Recent Advances in Science

Designed to bring the student up-to-date with the more recent developments in the field of science that have taken place in the past twenty-five years, this course assumes a background of information of the fundamentals of biological science and physical science.

Sci 531 Atomic Structure

This course includes a brief review of fundamentals of electricity and magnetism. Following this, the major topics are charged particles, atomic structure, electromagnetic radiation, waves and particles, electron configurations and atomic spectra. Prerequisites: General Physics, Mathematical Analysis.

Sci 532 Interrelationships in Science

This course is designed to help the student to evaluate the major divisions of scientific knowledge. Various problems will be selected and the contribution of biology, chemistry, and physics, to the solution of these problems will be studied. Three hours per week. Prerequisites: Chemistry I, II, Physics I, II, and Biology I, II.

Sci 533 History of Science, Scientific Literature, and Terminology

This course is designed to broaden the general scientific culture of those already prepared to teach science in the three respective fields of biology, chemistry, and physics. The course is an intensive study of the history of science throughout the world and an appreciation of the literature, terminology, the scientific method, and philosophy of science.

Sci 541, 542 Comparative Anatomy I, II

This course is a comparative study of the structure of representatives of the classes of vertebrates. The shark, necturus, and cat will be dissected. Three hours per week throughout the year. Prerequisites: Zoology I, II.

Sci 543, 544 Embryology I, II

A comprehensive course tracing the maturation of gametes, fertilization, cleavage, differentiation, organogenesis, and development in the vertebrates. Major emphasis will be placed on such phenomena in the chick, with correlative work on the frog and pig. A two-semester course with both lecture and laboratory work that

meets three hours a week. Prerequisites: Zoology I, II, Comparative Anatomy is desirable.

Sci 545 Microtechnique

A course designed to acquaint the student with the procedures involved in the production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections will be covered. Both plant and animal materials will be used. A one-semester course that will meet three hours per week, at least two of which will be spent in independent slide preparation. Prerequisites: Botany I, II, Zoology I, II.

Sci 551, 552 Taxonomy of Plants I, II

This course includes the collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Three hours per week throughout the year. Prerequisite: Botany I, II

Sci 553, 554 Taxonomy of Animals I, II

This course is a study of the classification system and its application to the identification of animals. Both Invertebrates and Vertebrates are included. Students are required to make collections of the common animals of the region. Prerequisites: Zoology I, II

Sci 555 Principles of Plant and Animal Distribution

Consideration will be given to the scientific principles underlying the geographic distribution of plants and animals. The factors causing speciation, the centers of origin, and the effects of climate, barriers, and geologic age on migration and range will be studied. Prerequisites: Botany I, II, Zoology I, II

Sci 561 Plant Structure

The anatomy of typical representatives of the vascular plants will be studied. Consideration will be given to the variations in structure and development of root, stem, leaf, and flower among various plant families. Prerequisites: Botany I, II

Sci 562 Animal Physiology

Through lectures and laboratory work, students will consider the events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement, and control by endocrines and nervous tissue. Prerequisites: Zoology I, II, Inorganic Chemistry I, II

Sci 563 Physiology of Plants

Cell physiology including respiration, photosynthesis, fermentation, enzyme catalysis, auxins, and membrane phenomena will be

stressed. Tropisms, mineral nutrition, water metabolism, and the translocation of solutes are additional areas of discussion and experimentation.

Sci 564 Problems in Biology

The course offers the opportunity for a student to conduct a literature search combined with controlled experimentation on a limited biological problem. Each student will choose a problem of interest from a field previously studied and work in consultation with his instructor. Prerequisites: six hours of graduate work in Biology and consent of the department.

Sci 546, 547 Biochemistry I, II

A study of the chemistry, metabolism, and function of the principal constituents of living matter. Three hours per week throughout the year. Prerequisites: Analytical Chemistry, Organic Chemistry.

Sci 548, 549 Physical Chemistry I, II

This course considers the gases, liquid, and crystalline states of matter, with relative molecular structure and physical properties. Thermochemistry, thermodynamics, electrochemistry, photochemistry, mechanochemistry, colloidal chemistry, nuclear chemistry, and relative problems of solutions, heat, work, and heat capacity, solutions of non-volatile solutes, homogeneous and heterogeneous chemical equilibria, ionic equilibria, and quantum theory will be studied. Three hours per week throughout the year. Prerequisites: Physical Chemistry, Integral Calculus

Sci 565, 566 Advanced Inorganic Chemistry I, II

Descriptive chemistry of selected elements and compounds. Interrelationship of atomic structure, chemical properties, and physical properties. Applications to experimental work. Prerequisites: Qualitative and Quantitative Chemistry or Qualitative and Physical Chemistry

Sci 567 Analytical Mechanics I

The topics of this course are kinematics, particle dynamics, gravitation, free and forced harmonic motion. The treatment of these topics involves the use of vector methods and the differential and integral calculus. Prerequisites: General Physics, Mathematics through Differential Equations.

Sci 568 Analytical Mechanics II

The topics of this course are the dynamics of rigid bodies, wave motion, and statics of particles and rigid bodies.

Sci 569, 570 Electricity and Magnetism I, II

Topics developed are D.C. and A.C. Circuits including properties of circuit elements, electrostatic and magnetic fields, magnetic

properties of materials, oscillating circuits and Maxwell's theory of electromagnetic radiation. Some elementary concepts of vector analysis are developed and used where they clarify the treatment. Three hours lecture per week, including some laboratory work and demonstration. Prerequisites: Sci 181, 182, Physics I, II, or the equivalent, mathematics through differential and integral calculus

Sci 571 Advanced Laboratory Practice

Study of selected topics in physics using advanced laboratory and mathematical techniques.

Sci 572 Demonstrations in Chemistry and Physics

Classroom and lecture demonstrations to be prepared and presented and evaluated by students and instructor. The course will include some elementary instruction in glassworking. Prerequisites: Chemistry I, II, Physics I, II

Sci 510 Problems in Science Education

This course will examine specific classroom problems in the light of current research in science education. Emphasis will be given to new approaches to curriculum revision, the introduction of concepts of modern science, the use of group dynamics in classroom situations, and recent efforts directed towards achieving the objectives of science education. Prerequisites: six hours of science at the graduate level.

SOCIAL STUDIES

SS 510 New Viewpoints in Social Studies Instruction

Starting with the conclusions developed from recent research in the several social sciences, a study will be made of the curricular and instructional changes which have been proposed to close the gap between what we now know about human behavior and what is generally taught in social studies courses.

SS 514 Research Methodologies in the Social Sciences

Selection of a research topic, techniques of locating and using source materials, the evaluation of evidence, the organization of the tested data, and the exposition of the tested data according to approved forms. Methodologies of value to students of politics, economics, or sociology will receive attention, in addition to those techniques usually treated in historiography.

SS 521 Contemporary American Issues

This course will be conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Class procedure will include lectures, oral reports, and a term paper.

SS 531 Economic and Social History of Pennsylvania

This course analyzes the economic and social background of Pennsylvania with emphasis on regional development. The interplay of such factors as industrialization and immigration on organizational movements will be studied through the problem approach.

SS 532 U.S.-British Commonwealth Relations

Emphasis is placed on those aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and international accord in the modern world.

SS 533 Social and Intellectual History of the United States

An analysis of the cultural forces which have helped to shape modern America. Ways of living characteristic of certain periods will be studied, together with the more significant social-reform movements and their attendant systems of thought.

SS 541 Modern European Problems

A course area that considers Europe from the economic, social, political, diplomatic, and cultural points of view. Attention is also given to specific problems and to the role of European powers in world affairs.

SS 542 Contemporary Latin American Problems

A study of the major cultural, economic, political, and related problems currently confronting the Latin American countries.

SS 543 Modern Asian-African Problems

To understand better the nature and problems of a large portion of the non-Western world, the emphasis will be placed upon an analysis of contemporary, social, economic, and political developments in selected areas of Asia and Africa.

SS 551 International Economics

The nature of the world economy, international trade, international investment, current international institutions, and the foreign economic policy of the United States.

SS 552 Comparative Economic Systems

Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems.

SS 553 Contemporary Economic Issues

Attention will be centered on problem areas of the domestic economy in this course. The primary focus in each semester will be determined by student-instructor interest.

SS 561 Social Policy Studies

This course will attempt to develop answers to the general question, "What courses of social action will best serve the general welfare?" Focusing on several key issues on the American social scene, the class will examine the genesis of each problem, the present conflict of values inherent in the problem, the alternative proposals for its solution, and the social consequences.

SS 562 Criminology

Crime as a social product. The social-individual analysis of criminal behavior, its treatment and prevention. Lectures, discussions, papers.

SS 563 Intergroup Relations

Problems and policies relative to selected groups, with special emphasis on recent trends in public opinion and the relationship of these groups to society. Lectures, discussions, papers.

SS 571 Foreign Policy Studies

This course considers selected problems in international affairs. Emphasis is placed on those problems and conflicts which have evolved in the post-war era, particularly as they relate to the position of the United States in World affairs. Specific problems are approached both in terms of the countries involved and in terms of the existing balance in the world economic, ideological, and power structure.

SS 572 Comparative Political Studies

A course that considers the theory, structure, policies, and problems of selected foreign governments. Specific political ideas and governmental institutions are also analyzed from the comparative point of view. Special emphasis is placed on comparing and contrasting ideas and institutions with those of the United States.

SS 573 Regional Political Studies

Examines the structure and function of state, county, and municipal governments. It emphasizes the problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states.

SS 581 Problems in Logic

A study of problems related to the methods of formal logic. Modern techniques of deduction with applications to philosophy and the exact sciences.

SS 582 Problems of Ethics

A study of conflicting philosophies of life and ethical theories.

SS 583 American Philosophical Thought

A study of the more original and influential philosophies developed in America from the Colonial period to the present.

GRADUATE
STUDIES

THE
MASTER'S
DEGREE

STATE COLLEGE
INDIANA, PENNSYLVANIA

1961

1962

